

Ziptrack Upgrade Effort

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Ziptrack

Magnetic Field Mapping System



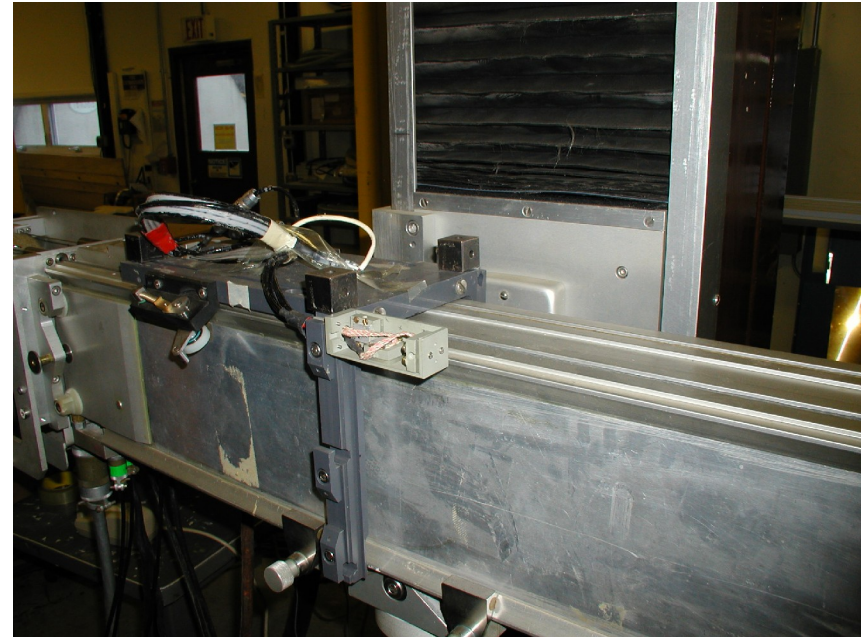
Current Ziptrack System

- Proven to be a very reliable precision system
- Camac based control
- Designed and built at Fermilab
- Working volume
1.5 m x 1.5 m x 12 m
- Measurement rate
2 points/second



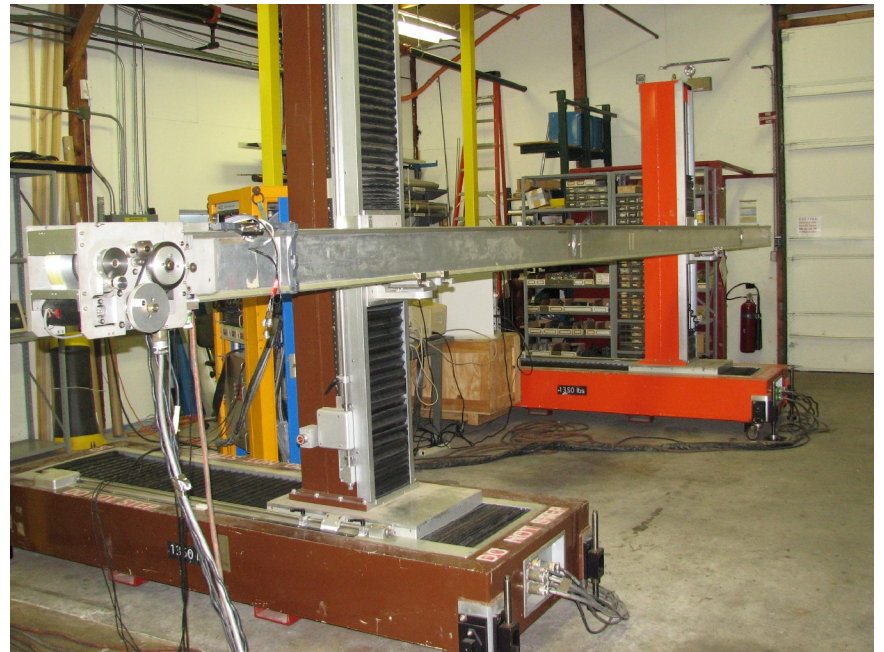
Digital Teslameters in Current System

- Measuring ranges
0.3, 0.6, 1.2, 3.0 Tesla
- Accuracy
+/- (.01% reading +
.006% full scale)



Current Positioning System

- 5 absolute encoders for position read back
- Positioning resolution
XY 12 μm
Z 180 μm
- Positioning repeatability
XY 50 μm



Ziptrack Upgrade Plans

- Dell Inspiron E1705 computer system
- LabView software
- Ethernet based system for signal transmission
- New motion controllers, stepper drivers, and power supplies
- All new motor drive and encoder read back cables
- Three-axis hall probe – will allow measurement of all three magnetic field components at a single point
- Renishaw tape scale linear encoder – will improve cart positioning accuracy

Ziptrack Upgrade Plans

Plans for probe orientation error reduction

- Recondition cart wheels and wheel bearings
- Improvement of cart/hall probe alignment
- Addition of a level sensor to cart to provide pitch roll and yaw of the cart as it moves along the beam